

REMARKS

The present application was filed on September 17, 1999 with claims 1 through 22. Claims 1 through 22 are presently pending in the above-identified patent application.

In the Office Action, the Examiner rejected claims 1-4, 6-10, 12-15, 17-20, and 22 under 35 U.S.C. §102(e) as being anticipated by Shirakata et al. (United States Patent Number 6,618,352 B1). The Examiner also rejected claims 5, 11, 16 and 21 under 35 U.S.C. §103(a) as being unpatentable over Shirakata in view of Kleider et al. (United States Patent Number 6,487,252 B1).

Independent Claims 1, 7, 13 and 18

Independent claims 1, 7, 13, and 18 were rejected under 35 U.S.C. §102(e) as being anticipated by Shirakata et al. Regarding claims 1 and 7, the Examiner asserts that Shirakata discloses modulating said OFDM signal in the frequency domain using adjacent sub-carriers to produce differentially encoded symbols (col. 14, lines 11-26); and an IFFT buffer (implicitly shown) for storing said differentially encoded symbols and one or more pilot tones to produce an analog signal centered at a desired carrier frequency (col. 13, lines 41-65).

In the text cited by the Examiner, Applicants note that Shirakata teaches:

As well as the transmitted data SD, the data modulating portion 201 is also supplied with the pilot carriers PC to which known complex numbers corresponding to phase and amplitude are assigned and a timing signal Sit for insertion of the pilot carriers, and then inserts the pilot carriers PC between the data carriers on the basis of the timing signal Sit. The pilot carriers PC are thus interposed among the data carriers and the subcarriers used in transmission are obtained as transmission subcarriers SC on the frequency axis. The data corresponding to the phases and amplitudes of the transmission subcarriers SC on the frequency axis are converted into parallel data in the serial-parallel converting portion 203 in units of transmission subcarriers corresponding to one symbol period, and then inputted to the inverse Fourier transform portion 205. The inverse Fourier transform portion 205 converts the parallel data to the time-domain signal St by applying inverse Fourier transform. This time-domain signal St is supplied with guard intervals in the guard inserting portion 207 and then quadrature modulated in the quadrature modulation portion 209 by using a signal generated by the oscillator 211. The quadrature-modulated signal is converted into an analogue signal in the D/A converter 213 and then outputted from the OFDM modulator through the low-pass filter 215 as the OFDM signal So'.

(Col. 13, lines 41-65.)

Contrary to the Examiner's assertion, Applicants find *no* disclosure or suggestion of storing said differentially encoded symbols and one or more pilot tones to produce an analog signal centered at a desired carrier frequency. Independent claims 1, 7, 13, and 18 require storing said differentially encoded symbols and one or more pilot tones to produce an analog signal centered at a desired carrier frequency.

Thus, Shirakata does not disclose or suggest storing said differentially encoded symbols and one or more pilot tones to produce an analog signal centered at a desired carrier frequency, as required by independent claims 1, 7, 13, and 18.

Additional Cited References

Kleider was also cited by the Examiner for its disclosure of a wireless communication system and method for synchronization using an unmodulated sub-carrier as a pilot tone (FIGS. 1-3 and col. 2, lines 55-64). Applicants, however, find *no* disclosure or suggestion of storing said differentially encoded symbols and one or more pilot tones to produce an analog signal centered at a desired carrier frequency.

Thus, Kleider does not disclose or suggest storing said differentially encoded symbols and one or more pilot tones to produce an analog signal centered at a desired carrier frequency, as required by independent claims 1, 7, 13, and 18.

Dependent Claims 2-6, 8-12, 14-17, and 19-22

Dependent claims 2-4, 6, 8-10, 12, 14-15, 17, 19-20, and 22 were rejected under 35 U.S.C. §102(e) as being anticipated by Shirakata et al., and claims 5, 11, 16 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shirakata in view of Kleider et al.

Claims 2-6, 8-12, 14-17, and 19-22 are dependent on claims 1, 7, 13, and 18, and are therefore patentably distinguished over Shirakata and Kleider et al., alone or in combination, because of their dependency from independent claims 1, 7, 13, and 18 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

All of the pending claims, i.e., claims 1 through 22, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



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